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THE WATER-CARRIERS OF PARIS.

[Fountain in the Place du Châtelet.]

WATER is one of the most essential necessaries of life; and together with an ample or insufficient supply of food enables population to add to its numbers, or compresses them within certain bounds. If the supply be scanty, or the quality unwholesome, and the evil cannot be remedied by artificial means, it is plain that the existence of a large or thriving community is impossible. None but those whose poverty fixes them to a particular spot will reside there; and if there should be the opportunity of acquiring property from the exercise of some local industry, those individuals who are sufficiently fortunate to do so, when they have become masters of their own

movements, will be under the strongest temptation to choose their residence elsewhere. Such a district will never be selected by those who can fix their habitation where they please; and it is therefore left to its poverty. A town thus situated may obtain a supply of water by means of aqueducts, canals, cisterns, reservoirs, hydraulic machines, &c.; and this triumph over the defects of situation places the inhabitants in circumstances favourable to their prosperity, and manufactures and arts may flourish which could never have been pursued but for an abundant supply of this necessary element.

Paris, though now well supplied with water, in former times often experienced the effects of scarcity, owing to the indifference of the authorities to the public wants, the concessions made to individuals and religious communities, and the defective nature of the hydraulic power employed in drawing the supply from its sources. Under the Roman domination, Paris obtained a supply of water by an aqueduct about five miles in length, which terminated at Arcueil. During the period which preceded the re-establishment of order and security, the Normans ravaged the country, and this aqueduct was either destroyed or became dilapidated. Henry IV. resolved upon re-establishing the Roman aqueduct; and in 1613 the first stone of the work was laid by Louis XIII. and his queen. It was found that, owing to a part of the aqueduct being carried over quarries of calcareous stone, the water percolated through the strata, and the fountains which it supplied became nearly dry. In 1777, the necessary repairs were completed at an enormous expense. The other sources of supply are the Seine, the Ourcq, and the springs of St. Gervais, Belleville, and Menilmontant. The aqueduct of Belleville was constructed in the reign of Philip Augustus, and was repaired by Henry IV. The aqueduct of St. Gervais, or Romainville, conveys the waters of Romainville and the neighbouring heights into a reservoir, from whence it is conducted by leaden pipes to Paris. Besides these aqueducts, there are a number of hydraulic machines, the principal ones being those of the Pont Notre Dame, of Chaillot, and of Gros Caillou.

Under the reign of Philip Augustus, Paris only contained three fountains. Between his reign and that of Louis XIV. thirteen others were constructed, and during the reign of Louis XIV. the additions were much more numerous. From 1804 to 1812, the most palmy period of the Empire, the number of fountains erected was 17. The number of fountains is now about 70; and there are above 130 *bornes fontaines*, or orifices, in the public streets, from which the water issues.

In 1608 an hydraulic machine, constructed by a Fleming, was fixed near the Pont Neuf, and in 1671 a similar machine was placed contiguous to the Pont Notre Dame. These machines were frequently out of order, and the greatest inconvenience was occasioned by the want of water. In 1769 the Chevalier d'Auxiron made a proposal for erecting steam-engines in certain positions which would obviate the defects of the old machines; but no active steps were taken until 1778, when a company, authorized by letters-patent, commenced its labours. The engine at Chaillot, which they caused to be fixed, was the first of the kind worked in France: this machine was put in motion in 1782. In 1788 four-fifths of the Company's shares had been sold on the Stock Exchange for government securities; and the executive being in possession of nearly the whole property, the engines and the establishment of the proprietors passed into its hands. The supply of water has been vested in the government ever since.

A want of practical talent was exhibited by the French more frequently in the period preceding the Revolution than since that change. During the reign of Louis XIV. splendid fountains were constructed, but when completed they benefited nobody, as the water for supplying them was not to be obtained, and they stood as if in mockery of the wants of the people. The same course was pursued in the succeeding reign. The machines for raising water were inefficient, and the scarcity was great. Privileged individuals and religious establishments were abundantly supplied, but the inhabitants generally could not obtain a sufficient quantity. When complaints were made which could not be silenced, the authorities attacked the privileges which had been granted to individuals, or they ordered new fountains to be erected. The fine fountain of Grenelle, finished in 1739, was the result of one of these efforts to satisfy the public; but for some years it gave no supply, and hence it was generally called "La Trompeuse." It was not until the power of steam was applied to raise water that this fountain fulfilled the purpose of its construction. Under Louis XVI. the municipal authorities willingly undertook to erect fountains, but no plan of supplying them was seriously taken into consideration. Dulaure remarks, in his 'Histoire de Paris,' that "they wished to show they had abundant resources, while at the same time they were attacked on all sides on account of scarcity: they were poor, and they wished to show themselves magnificent."

In 1799 proposals were made for bringing the waters of the Ourcq to Paris, but the plan was not considered feasible. In 1802, however, the government gave directions for undertaking the work, the expense of which was to be defrayed out of the receipts at the barriers on different articles of consumption. Various circumstances occasioned delays, and in 1814 a complete suspension of the works took place, but they were completed under the Restoration. The waters of the Ourcq are conveyed by a canal, which is navigable, into a large basin within the barriers, from whence the houses, manufactories, and fountains, obtain an abundant supply. The canal is about twenty-five miles in length, and by avoiding the windings of the Seine greatly facilitates the conveyance of goods.

Few houses are supplied with water by pipes which convey it at once into the apartments. Hence a description of industry has sprung up which is unknown in London, where water is brought into each house by pipes; in Paris it is sold by a distinct class of men, who carry it from house to house and from family to family. The price is one sous for each pail. The number of "porteurs d'eau" having casks on wheels exceeds 1400; and those who carry it with yokes, in the manner that milk is carried in London, are still more numerous. It is calculated that about 180,000*l.* a-year is paid to the water-carriers. Besides the water obtained from the fountains there is a company, or companies, for supplying filtered water. The water-carriers are an industrious class of men, of simple habits, and very economical, for which they have an object sufficient to deter them from dissipation or ill-judged expenses. They indulge the hope of some day being enabled to possess a slip of land in their native department. The wife often assists in the labour of drawing the casks, which are placed on wheels, and is not less an advocate of every plan which can ensure the completion of their hopes.

In Madrid there is a similar class of people who are the exclusive water-carriers of that capital. They are Gallegos and Asturians, and are several thousand in number. Their object is to save a little fortune, and when this purpose is accomplished, they dispose of the good-will of the "walk" in which they were accus-

tomed to ply their vocation, and retire to their native district. In Madrid water is sold also by the glassfull in the streets. It is brought from a distance of thirty miles, and its quality is remarkably fine. The earthen jar in which it is carried about the streets is suspended by a leathern sling, and in the mouth of the jar is a cork with two reeds, one for the admission of air, and the other for the water to pass out. A glass is carried in a basket on the left arm, and is filled with great dexterity. The dealers keep up an incessant cry in the street in badly-pronounced Spanish, the burden of which is—" Water! fresh water! fresh from the fountain! Who drinks, gentlemen! who drinks?"

The engraving represents a number of Parisian water-carriers around the fountain in the Place du Châtelet, where formerly stood a feudal court of justice and a prison. The fountain is called 'La Fontaine du Palmier,' or 'La Colonne du Châtelet,' and was erected in 1808. The statues represent Justice, Strength, Prudence, and Vigilance, and their joined hands encircle the column. The names of the principal of Napoleon's victories are inscribed on the column. The heads above the capital represent the Winds, and in the centre is a globe, on which stands a gilt statue of Victory.

BEAR-HUNTING IN LITHUANIA.

While the Finlander, who yet lives in almost a state of nature, hunts the bear by seeking him in his den, forcing him out from thence, and formally challenging him to a duel, in which he pierces him to the heart with a long spear, the more civilized Lithuanian pursues the chase in a widely dissimilar manner, with guns and dogs. As with the stag, the chase is separated into three different methods. The first is called *den anstand*, the lying in wait, or ambush; the second, *den pirschgang* or *den bürschgang* *, rifle-shooting; and the third, *das treibjagen*, or the driving. The bear, when hunted, differs from all other wild animals, even from the wolf, in not appearing to fear the hunters, but rather seeking to attack them. In this mainly consists the difference between the bear and other hunting in every country. We will first describe the driving hunt.

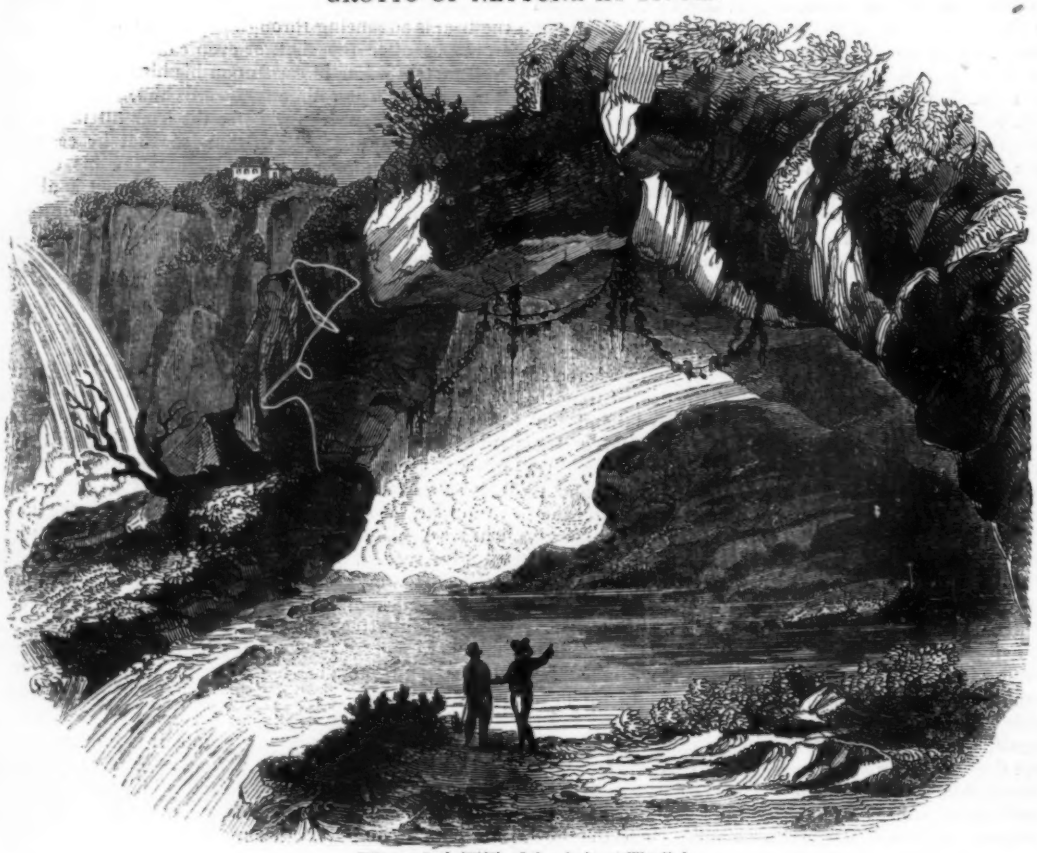
A woody district, in which, through the examination of the guides, it is certainly known that a bear is harboured, or in which, from its nature, it is probable that one will be found, is, upon the windward side, guarded by a number of men armed with guns, who very carefully endeavour to conceal themselves behind trees or bushes, so that the bear may not see or be able to attack them. On the other sides some courageous hunters, well armed with guns and hunting-knives, enter the wood and commence making a loud noise with rattles, which alarms or disturbs the bear, so that he rouses himself and runs away. By this means he is driven before the line of the shooting party; and it is seldom that he escapes the well-practised marksmen, who, as he commonly advances slowly, are able conveniently to have a good shot at him. If the bear is only wounded, they let slip two, or at most three, of the little bear-dogs (a small sort of hound), which attack the bear without having the courage to bite him. The bear, who is not at all afraid of them, now elevates himself upon his hind legs, endeavouring to guard himself against these troublesome visiters; and while his whole attention is directed towards the dogs, the hunter has time to creep towards the bear within about twenty paces, and to send a ball through his head. It is not, however, always the case that a hunt proceeds so regularly and so fortunately. If a hunter is imprudent enough to step from behind his tree at the moment when the bear is advancing through the thicket, or if he makes any noise after the shot, or even calls out, the animal immediately raises himself upon his hind legs, and runs with great swiftness directly towards him. If the hunter is not cool enough to wait for the bear till he has advanced within five paces of him, so that he can make certain of lodging a ball exactly between his eyes; if he fires too soon, or if he misses the bear, it is all over with him if his neighbour does not come promptly to his assistance, for the bear immediately strikes him to the ground with a single blow, and then proceeds to bite him to death; and it is well known that a single gripe is frequently sufficient.

In the ambush, in which the hunter conceals himself, and awaits the bear in his known haunts; and in the rifle-shooting, in which he seeks him in the forest, it is necessary not only to be well armed, but to be always provided with two of the small bear-hounds. In the rifle-shooting the dogs are suffered to range freely to discover the game. As soon as they have found a bear, they place themselves before him, and begin to bark furiously. The huntsman advances towards the noise, cautiously and silently approaches to within about twenty paces of the bear, and shoots him through the head. It is a prudent precaution in this chase to have also a third hound in a leash, in order that, if a second bear should attack the hunter while the other dogs are far away upon the track of the first, or have already found it, he may let this loose, and he is thus protected from the attack; for the bear, through fear of being bitten on the legs, will always face the dogs. The following incident will prove how dangerous it is to attempt this chase without the assistance of dogs:—A very courageous young bear-hunter, who had already killed several bears without his dogs, proceeded one day to the chase, leaving both his dogs at home, and depending only upon his rifle and his good fortune. This time the latter proved unfaithful to him. A bear, which he had either met so suddenly that he had not been able to shoot him, or which he had missed, gave him unexpectedly a most fearful box on the ear that made him think his last hour had without any doubt arrived. In vain the unfortunate man threw himself upon his back, and feigned to be dead; the bear had no intention of giving up his office of revenger of his slaughtered comrades, and the conqueror of many bears now expected nothing less than the powerful bite of his throat, which would separate the tie betwixt " to be " and " not to be." Suddenly the bear turned himself round, stood up with his hind legs on his prey, and with his forepaws defended himself against a new, unconquered, and, from their great agility, unconquerable enemy.

The two dogs of the young man had taken an opportunity of escaping out of the house, had found and followed their master's track, and had arrived at this very critical moment, in time to give the bear another and less welcome employment than he had contemplated. Nevertheless the young man's danger was not yet over, for the bear had placed himself directly upon his body, and he was therefore unable to rise or to crawl away. He succeeded, however, at length, in drawing his short hunting-knife (which is of the size of a dagger), and plunged it into the side of the bear, giving him a wound under which the creature at length sunk down. Although it may appear extremely improbable that the bear should not have sprung away on receiving this last wound, yet the truth of this circumstance can be vouched for. Upon the subject of the capture of bears by means of snares, traps, &c., we will not at present enter.

* This is more precisely rendered by the English "shooting." The sportsman goes out with his dogs and gun, but the gun is a rifle.

GROTTO OF NEPTUNE AT TIVOLI.



[View of the Falls of the Anio at Tivoli.]

A GENERAL description of Tivoli, the Tibur of the ancients, will be found in the first volume of this Magazine, in the 34th Number; and a view is given of the Temple of the Sibyl, which is the chief architectural embellishment of this celebrated place. We now present a view of its great natural attraction—the Falls of the Anio, as seen from the Grotto of Neptune. The fall and windings of this river still constitute, as they did in ancient times, the pride and ornament of Tivoli. Eustace has described them in his 'Classical Tour.' The modern name of the Anio is the Teverone. "This river," he says, "having meandered from its source through the vales of Sabina, glides gently through Tivoli, till coming to the brink of a rock it precipitates itself in one mass down the steep, and then, boiling for an instant in its narrow channel, rushes headlong through a chasm in the rock into the caverns below. The first fall may be seen from the window of the inn or from the temple; but it appears to the greatest advantage from the bridge thrown over the narrow channel a little below it. From this bridge also you may look down into the shattered well, and observe, far beneath, the writhings and agitation of the stream, struggling through its rocky prison. To view the second fall, or descent into the cavern, we went down through a garden, by a winding path, into the narrow dell, through which the river flows after the cascade; and placing ourselves in front of the cavern, beheld the Anio, in two immense sheets, tumbling through two different apertures, shaking the mountain in its fall, and filling all the cavities around with spray and uproar. Though the rock rises to the height of two hundred feet, in a narrow semicircular form, clothed on one side with shrubs and foliage, yet a sufficient light breaks upon the cavern to show its pendent rocks, agitated waters, and craggy borders. About a hundred paces from the grotto, a natural bridge, formed by the water working through the rock, enables the spectator to pass the river, and to take another view of the cascade, less distinct with regard to the cavern, but more enlarged, as it includes a greater portion of the superincumbent rock in front, with the shagged banks on both sides. The rock immediately above and on the left is perpendicular, and crowned with houses, while from an aperture at its side at a considerable height gushes a rill, too small to add either by its sound or size to the magnificence of the scenery. The bank on the opposite side is steep and shaggy, but leaves room for little gardens and vineyards. On its summit stands the celebrated temple commonly called of the Sibyl, though by many antiquaries supposed to belong to Vesta." The path which leads to the Grotto of Neptune is highly picturesque.

The scenery of Tivoli is grand and striking, and the vicinity is rich in classical associations. Its distance from Rome is about twenty miles, and few visiters leave that city without making an excursion to a place possessed of so many claims to interest.

THE AUTOMATON CHESS PLAYER.

(Chiefly abridged from Le Palamède, a French Chess Journal.)

PERHAPS no piece of mechanism has ever afforded so much entertainment or caused so much discussion, as Baron Kempelen's automaton chess-player. It first appeared at Presburg, in 1770; and the best players

of the town were worsted, as it seemed, by a machine. The automaton, adorned with a splendid turban, and dressed in the rich costume of an Asiatic sultan, sat before a chess-board placed upon a sort of cupboard, three feet high, two feet broad, and four feet long, and moving on castors. The cylinder, levers, and springs necessary for the machine were in the cupboard; and before it was put in motion the inventor took care to open the doors of the cupboard alternately, and to point out that the quantity of clock-work with which it was filled made it impossible to introduce any person into it. As soon as an antagonist presented himself, the exhibitor took up his long iron key, and wound up the machinery with studied gravity, during which the clicking of the wheels was distinctly heard.

The eyes of the automaton were now directed to the board, and, after due meditation, he lifted up his arm, placed it over the piece that he intended to move, grasped it between his fingers, and then put it on the square where it was to remain. If a false move was made, he shook his head discontentedly, and replaced the piece. When the automaton gave check, his lips moved and uttered a hoarse sound resembling *shay*, which served as a notice to his adversary.

Thus nothing which could favour the illusion had been neglected; and though on reflection it appeared certain that the hand of the automaton was guided, the method of the communication remained a mystery. All eyes were turned to Kempelen, and endeavoured to draw from his physiognomy or gestures some hint of the means that he employed—but in vain. Sometimes he turned his back to the table, and sometimes went several steps from it, allowing three or four moves to be played before he returned: the table too might be moved at the will of the spectator, thus rendering all communication with the floor or the next room impossible. The examination which had been allowed of the interior showed that a child or a dwarf could not be concealed in it; besides, supposing that one had been there, how could he, at the bottom of a cupboard, almost hermetically sealed, see a game played on a board placed on the table above?

The mystery was long impenetrable. The automaton visited the capitals of Germany, England, and France; he was received everywhere with great curiosity, and often excited the most lively transports of surprise and admiration. He arrived at Paris in 1783, where his star shone less brightly before the celebrated players of the *Café de la Régence*. But an automaton might, without blushing, confess himself beaten by a Philidor or a Legalle, and yet have a brilliant career before him. On returning to Berlin, he threw down the gauntlet to all the courtiers of Frederick the Great, and was even allowed the honour of measuring his strength with the king himself, a great lover of the game. In a moment of enthusiasm Frederick paid a large sum for the machine and the secret. The charming mystery was no more: the automaton, taken to pieces, despised, and covered with dust, was banished to a lumber-room in the palace, where he remained for nearly thirty years, buried and forgotten.

When Napoleon was at Berlin, the automaton was rescued from his tomb, re-assumed his former spendour, and, proud of having triumphed over the conqueror of Austerlitz, continued his travels.

After some years he arrived at the Bavarian court, where the ecstasy which his play never failed to excite was again renewed. Indeed the impression made was so strong, that Prince Eugene could not resist the temptation of becoming the possessor of this masterpiece, and learning the secret which was at the bottom of so many prodigies; his desire was satisfied, and the price of his initiation was fixed at 30,000 francs (1200*l.*)

The moment had arrived when the veil was to be removed, and he was to become acquainted with the invisible genius,—the superior being that hovered over the chess-board. All profane eyes had been banished, and the Prince was alone with the exhibitor. The latter, by way of explanation, opened both the doors of the machine at once;—the clock-work had disappeared, and a real flesh-and-blood chess-player was in its place. He was sitting on a low bench, upon castors, and seemed very ill at ease. We may suppose how the new purchaser was disenchanted on seeing this;—the solution of the problem depended merely on a juggling trick. The cylinder, levers, and clock-work, were very slightly made, and could be removed at pleasure. While the spectator was indulged with a view of the machinery, the doors being opened, not at once, but only in succession, the player concealed himself in the parts not exposed to view. One or two rehearsals served to teach a player this exercise, as well as the method of turning the handle that moves the automaton's arm, of touching the elastic spring that moves its fingers, and of pulling the cord belonging to the bellows that said *shay*. Hence it would appear that this part of the secret was pretty well guessed or known by the author of a pamphlet, entitled 'An Attempt to analyse the Automaton Chess-Player of M. De Kempelen.' London, 1821. 8vo. After describing the manner in which the player may take refuge in one part of the machine while another is exposed to the spectator, he says, "When the doors in front have been closed, the exhibitor may occupy as much time as he finds necessary in apparently adjusting the machinery at the back, whilst the player is taking the position described in figs. 7 and 8. In this position he will find no difficulty in executing every movement required of the automaton: his head being above the table, he will see the chess-board through the waistcoat as easily as through a veil."

But the ingenious author of this pamphlet, though right in his supposition that the game is played by a person concealed in the machine, is wrong in imagining that he sees the moves of his antagonist. The method by which the player becomes acquainted with the moves made upon the board shows a singular felicity of mechanical contrivance; but we purposely abstain from detailing it, that the present exhibitor may not lose all the advantages of mystery.

Prince Eugene now found that keeping the automaton was useless, unless he also kept the player; and he therefore allowed the proprietor, M. M———, to carry off the wonder-working Turk, on condition of paying interest for the sum which had been given for the secret.

A pleasant story is told of a panic that once seized the automaton. He had arrived at some town in Germany, where a celebrated conjuror was exhibiting his tricks. The automaton soon eclipsed the juggler; the latter, piqued at his success, went to see him, guessed the secret, and, seconded by an accomplice, began to roar out most lustily "Fire! Fire!" The spectators ran here, there, and everywhere; the automaton in his fright upset his antagonist, rolled about in the strangest way, and seemed to have gone mad. Fortunately, M. M——— had preserved his presence of mind, and pushed him behind a curtain, where his fears were soon calmed. Thus the juggler was defeated, and the glory of his rival remained untarnished. The automaton has passed several years in North America, and has visited the principal towns both of the United States and of Canada. He is now exercising his talents in South America.

SUPPLY OF LARGE CAPITALS WITH FOOD.

[Concluded from No. 308.]

THE general violation of the principles of production had so completely disorganised the economy of society, that the proposition of the state taking possession of all raw materials, and manufacturing on its own account, began seriously to be entertained. The ruinous consequences of such a course were overlooked amidst the necessities of the moment. At every step in this career the public difficulties increased, and the erroneous principles which had given rise to them were still more earnestly clung to as a means of obtaining supplies. The Commune of Paris required each dealer in the necessaries of life to make a statement of the stock which he held, the orders which he had given for a fresh supply, and the expectation he entertained of its being received. All dealers who had been in business one year, if they gave up business, were placed on the list of disaffected persons, and as such were imprisoned. To prevent individuals accumulating a stock of provisions for their private consumption, the Commune issued orders that the consumer could only be supplied by the retail dealer, and the latter only by the wholesale dealer, and it fixed the quantity which each should be allowed to obtain. Thus the shopkeeper could not obtain more than 25lbs. of sugar at one time of a wholesale dealer. The cards authorizing the delivery of these scanty supplies were delivered by the revolutionary committees. The Commune did not stop here, but as the crowds which surrounded the bakers' shops frequently occasioned tumults, and many persons passed a part of the night in order to obtain an early supply, directions were given that the last comers should be served the first; but this neither diminished the anxiety of the people nor the causes of disturbance. On complaints being made that the worst description of bread was reserved for the poor, it was ordered that there should only be one sort of bread made in Paris, which should consist of three parts wheat and one part barley.

Some delay had taken place in applying the *maximum* to goods before they left the manufactory, but it was at length determined that they should be subjected to it; and tables were prepared of the prices at the place of production three years before, and a scale of future prices was arbitrarily fixed, and even the rate of profit of the wholesale and retail dealer. The cost of carriage was also settled; so that the exact price at which the goods were to be sold was established before they reached the retail dealers. The raw materials were not yet comprised in the tariff, but at least one-half of the labours of the community were brought within the most absolute and vexatious rules. Commerce, however, endeavoured to emancipate itself from them in spite of the penalties by which it was surrounded; and merchandise and produce were frequently concealed and secretly sold, or, what was worse, they ceased to be an object of production.

In 1794, owing to the war in La Vendée, from whence Paris drew its supplies of cattle, there was a real scarcity of meat. The butchers could only procure a supply at an exorbitant price, and, obliged to sell at the established prices, they endeavoured to evade the law. The best meat was reserved for those who could afford to pay a good price, and a number of clandestine markets were established in the neighbourhood of Paris. The buyers who presented themselves in the shops, and offered the regulation prices, either could not obtain a supply, or meat of the worst description was offered to them. Vegetables, fruit, eggs, butter, and other articles were no longer brought to market. The price of a cabbage was 10*d*. The market carts were met on the road, and the produce was bought up at any price. Paris, in the mean time, was in a state of famine. Great numbers of persons obtained a living by forestalling the markets, and selling provisions above the maximum to families in easy circumstances. The Commune interfered with its regulations, and directed that those who forestalled the markets should be subjected to the heaviest punishments, and that the supplies should be equally distributed in the different places of public sale. Persons waited around the butchers' shops in the same manner as at the bakers'. These multiplied regulations did not do away with the evils complained of; and at length it was suggested that the public gardens should be planted with potatoes and other vegetables. This idea was eagerly adopted, and the Commune, which refused the people nothing, acceded to the plan. The authorities had granted everything which was demanded, but as the evil did not decrease, the most violent and ignorant began to attribute the public calamities to the moderation of one of the parties in the National Convention; and the clamour did not cease till these men were led to execution.

The harvest of 1794 was abundant, and orders were given that it should be threshed out immediately. To prevent wages rising to an extraordinary height, harvest labourers were put in forced requisition, and their wages were settled by the local authorities. The supply of meat was still insufficient, and the daily consumption of Paris was fixed at 75 oxen, 150 cwt. of veal and mutton, and 200 pigs. These could only be slaughtered at one particular place, and the butchers appointed by each section of the capital came there for their supplies. The inhabitants were served in rations like an army in the field. Every five days each family was entitled to receive half a pound of meat for each individual. This supply could only be obtained on the presentation of a card delivered by the proper authorities. As wood and charcoal did not arrive, owing to the operation of the maximum, the supply to each family was limited in like manner. During this period the country butchers carried on a lucrative trade. Profiting by the negligence of the rural parishes, they bought cattle in the pastures, and sold it above the maximum in a clandestine manner. The knowledge of this fact, however, soon occasioned the graziers to be subjected to a rigorous system of inspection.

In 1795 the harvest was bad, and was followed by a severe winter. The reign of terror was over, but it was not so easy to restore life to commerce. The extraordinary system of provisioning Paris not being sustained by men's fears, the supplies were more deficient than ever. The relaxation of the maximum was resolved upon, but this not being immediately followed by the awakening of individual industry and confidence, there was every prospect of a complete dearth. Prices were excessive, and the Government, in order to bring them down, placed stores of its own at the pork-butchers, the grocers, and shopkeepers, to be sold at a cheaper rate. But this plan only led to frauds which defeated the intentions of the authorities. This desperate state of things added to the exasperation of political parties. "Behold," said one, "the effect of the abolition of the maximum;" "Look," said the other, "at the inevitable effect of your revolutionary measures." "Repair the injustices which have been committed," repeated some; "Restore the energy of the Revolution," said others. On the 16th of March the inhabitants were put upon rations. A pound of bread per day was given to each individual; and a pound and a half was given to working men, who were also served the first. On the 26th of March the quantity of flour necessary for the supply of the day not having arrived, only one-half of the usual rations was distributed, and the remainder was promised for the end of the day. On the 1st of April a mob, which consisted of women and chil-

dren in the first instance, created a tumult on account of this mode of obtaining the means of existence, which led to an outrageous violation of the freedom of the legislature.

In 1796 the Directory suppressed the distribution of provisions by rations, but the change was not effected without difficulty, and for a considerable time the Government was under the necessity of buying grain at its full value, and re-selling it to the inhabitants at a nominal value. The receipts scarcely equalled 1-200th part of the cost of this mode of supply, and the population of Paris was thus pretty nearly supported at the expense of the remainder of the country. Rations were for some time longer distributed to the indigent, to the creditors of the State, and to public officers whose incomes did not exceed 1000 crowns. The final suppression of rations to the inhabitants generally excited violent commotions.

It will be perceived from the foregoing circumstances, that the consequences of throwing the hopes and feelings of the industrious part of the community out of their ordinary sphere were of the most mischievous character; and that the task of supplying the population with food by forcing the action of commerce, and arbitrarily interfering with private concerns, was found to be attended with perils both to individuals and to society. Let the system then pursued be contrasted with the silent operation of individual interest directed to the same end with such advantageous results to all classes. A more alarming state of things cannot be conceived than an immense population reduced to such a dilemma as the one which has been described; and the folly and inutility of coercive measures is rendered more glaring by the fact, that, generally speaking, there existed no alarming deficiency in the quantity of food. The want of confidence in the security and stability of things alone rendered its distribution uncertain and nearly impossible.

STUDY OF PHYSICAL GEOGRAPHY AND TOPOGRAPHY.

The method of teaching geography, which has hitherto been too commonly adopted, produced little other effect than that of fixing in the mind the mere names of things. The young learner was able to recollect the capital and two or three of the great cities and rivers of a country; but of its configuration, the character of the rivers, the quality of the soil, and the natural productions which it furnished, he remained in comparative ignorance. The real elements of the science are full of interest, forming an index to some of the leading circumstances which have developed the character of man, while the vocabulary which has been substituted for it is dry and uninstructive. Some of the ancient aristocracies and priesthoods hated the sea, because civilization, which is destructive of error, was fatal to their authority, and they knew that there, where the means of communication, of intercourse and traffic existed, were to be found the germs of improvement; and that the ocean, which conveyed men upon its bosom to scenes removed from those in which they had been brought up, led to enlarged and enlightened views, and prepared the way for a greater measure of truth. The coast-line of Greece and Italy was favourable to the intercourse of early navigation, and in those countries the human mind received a developement unknown at the time to more inland people. To the same element England is to a large extent indebted for her greatness. The long valley of Egypt, which is penetrated by a fertilizing river, witnessed the earliest efforts of human advancement, while the country beyond it, intersected by scarcely a river which affords the means of commercial intercourse, has remained stationary for many centuries. These instances will show that something more fertile in results is to be obtained from the study of geography, than that which a mere nomenclature of cities, rivers, and mountains can convey.

It is not less interesting to observe the effects of geological structure in producing dissimilar conditions in the population, which render their habits and occupations closely connected with geological causes. "If a stranger, landing at the extremity of England, were to traverse the whole of Cornwall, and the north of Devonshire, and crossing to St. David's, should make the tour of all North Wales, and passing thence through Cumberland by the Isle of Man, to the south-western shore of Scotland, should proceed either through the hilly region of the border counties, or along the Grampians to the German Ocean, he would conclude from such a journey of many hundred miles, that Britain was a thinly-peopled, steril region, whose principal inhabitants were miners and mountaineers. Another foreigner arriving on the coast of Devon, and crossing the midland counties from the mouth of the Exe to that of the Tyne, would find a continued succession of fertile hills and valleys, thickly overspread with towns and cities, and in many parts crowded with a manufacturing population, whose industry is maintained by the coal with which the strata of these districts are abundantly interspersed. A third foreigner might travel from the coast of Dorset to the coast of Yorkshire, over elevated plains of oolite limestone, or of chalk, without a single mountain or mine or coal-pit, or any important manufactory, and occupied by a population almost exclusively agricultural*."

The elements of physical geography are not actually beneath the eye of the inquirer; but physical topography, which presents some of the features of the same science within the more limited circle of a district or town, instead of a continent, or a whole country, offers the means of direct personal investigation. Let any one survey the town or district in which he resides, and proceed to analyze the causes to which it owes its origin, or its present appearance, and the process will be found full of interest and instruction; while it scarcely demands the aid of books, and may form the amusement of a solitary walk. If the town be an ancient one, it may have constituted a place of security from the marauders of rude times, and as men resorted to it that they might prosecute their callings in peace, it has probably once been more populous than at present; but the benefits of protection being spread over the whole country, the advantages which it held out were less appreciated, the place has gone to decay, and the population has transferred itself to more thriving scenes. This may be taken as an example of the effects of political change. When wood was cheaper than coal, and the art of smelting iron by coal was unknown, there were smelting furnaces in Sussex; but the destruction of the forests, and the manner in which coal can now be applied to the conversion of iron, has changed the place of production from Sussex to the districts which possess coal mines. In some parts of the coast the sea has gained upon the land, and ancient ports have been destroyed; and in other cases the land has gained upon the sea, and the port has been left dry. These changes, from the relation which they have to man and to his labours, render the scene by which they have been marked far from uninteresting. It is not useless to trace the circumstances which have created the seats of a particular industry. The hardware trade has fixed itself at Sheffield and Birmingham, because they are each placed in a district containing both iron and coal; and when the chief moving power was the

* Buckland's 'Bridgewater Treatise.'

water-wheel, the former place, owing to the streams by which it is surrounded, was peculiarly adapted for the manufacture of edge-tools, and other articles which require to be sharpened and polished by the grinding-wheel. If the four great ports of Bristol, Liverpool, Hull, and London be taken, it is obvious that, from the situation of the two former, they are the emporiums which are best adapted for the commerce of America, the West Indies, and Ireland; and that Liverpool has outstripped its more ancient rival owing to the districts of Lancashire and the West Riding of Yorkshire, to which it is adjacent, having become flourishing seats of manufactures, containing one-seventh of the population of England, while the population which surrounds Bristol has not advanced in the same extraordinary ratio, and, with the exception of Gloucestershire, the number of agriculturists exceeds that of any other class. Hull, on the eastern coast, opposite the northern parts of Europe, is evidently the most fitting station for the commerce of the Baltic and the North Seas: and London, which from its position nearer the base of the island is conveniently situated for carrying on its commerce with any part of the world, is accordingly the general emporium of merchandise and produce from every quarter of the globe. These statements may perhaps be considered as trite and obvious; but they show the manner in which an observant but comparatively uninstructed person may always have at hand some materials for reflection calculated to exercise and improve the mind. Proceeding from the simple to the more complicated materials which this study affords, there will arise subjects for consideration calculated to task severer thought and to illustrate points which throw light upon the most difficult questions. In a little work just published, entitled, 'Popular Politics,' there is a short chapter headed High Rents for Poor Land, which we extract for the purpose of shewing more clearly the interesting conclusions to which a habit of examining into the common things which surround us may lead. The following extract, with a slight omission, comprises the whole of the chapter alluded to:—

"All the land for some miles south, east, and west of Dunkirk (Downechurch), in France, consists naturally of downs of loose sand, blown up from a gaining seashore on to a deep subsoil of sand, without water, and as steril as the most naked rock. Yet in this district the rent of land is considerably higher than in the very fertile district which, on the opposite coast of England, divides the Isle of Thanet from the rest of Kent. Why? * * * This is the way in which the people about Dunkirk account for the high rents yielded by their naturally steril land.—Time was when the district was uninhabited, and then, of course, no rent was paid. But a church having been built on the barren downs, and its patron saint, Eloi, being in great repute, pilgrims flocked thither from all parts of France and the Low Countries. By this means a town was established. In time the inhabitants of the town constructed a port;—roads were next made from the port across the downs to the populous high lands, which had once formed the sea-shore;—and afterwards canals in various directions, the flatness and softness of the sandy district offering great facilities for canal-cutting. In the end, the means of communication became more abundant in this district than in any other part of France, as they are still; and the result was, that the population of the district became very great, towns and villages being built at a short distance from each other;—that, by means of canals, clay and other manures were easily obtained, and being applied to the sand rendered it more productive than the ancient high lands of chalk; while those canals, again, afforded great facilities for taking produce to market. In this way, the cost of production becoming less and less by means of art, the naturally steril downs about Dunkirk, which have never been used except for producing food, became more valuable, subject to a higher degree of competition, than the rich marsh-lands between Sandwich and Reculver, on which the population is scanty, and of which every acre, in comparison with any market in the French low countries, is distant from market."

It may be possible, where the interests of the many are subordinate to those of one man, that cities and towns may be founded on sites almost destitute of the essential materials which supply the wants and contribute to the prosperity of the majority of the people. A town like Versailles may arise at the caprice of a monarch, but it may as suddenly decline from the same cause. At the Revolution, Versailles numbered a population of 100,000 souls, but it does not now contain 30,000. Madrid is a singular instance of the disregard which has been paid to natural advantages. The surrounding country scarcely supplies any of the necessaries of life; and the insignificant river or stream on which it has been built, not being navigable, supplies of food are brought from remote parts of the kingdom on the backs of mules. It is shut out by a barrier of mountains on the north and west, which precludes the possibility of its becoming a seat of extensive commercial interest. The soil of Genoa is equally ill adapted for furnishing supplies of the necessaries of life; but its superior situation as a sea-port has enabled the Genoese, aided by a wise commercial system, to overcome the disadvantages to which they would have been condemned had they not turned their attention to other resources than that of agriculture.

The surveyor-general for the colony of South Australia, before leaving England, received instructions to select as sites for towns those which comprised in the highest degree the following natural advantages:—1. A commodious harbour, safe and accessible at all seasons of the year. 2. A considerable tract of fertile land immediately adjoining. 3. An abundant supply of fresh water. 4. Facilities for internal communication. 5. Facilities for communication with other ports. 6. A supply of building materials, as timber, stone or brick, earth, and lime. 7. Facilities for drainage. 8. Coal. With a view to the successful completion of his important services, the surveyor-general was directed to make himself acquainted "with the circumstances which have determined the sites of new towns in the United States of America, in Canada, &c., and more especially in the Australian colonies; and to those causes which, in the latter colonies, have led to an actual change, or to the desire for change, in the sites of certain towns after their establishment." The streets of these new towns will be of ample width, and arranged with reference to the convenience of the inhabitants and the beauty and salubrity of the town; and reserves of land are to be made for squares, public walks, and quays. These arrangements comprise all the great means calculated to render a town the seat of a thriving community. They are framed for the purpose of securing the convenience and comfort of all the inhabitants, and not, as in many European towns, of a few individuals.

The subject of this notice has not been treated so much with regard to regularity as with a view to excite some interest, and to direct attention to a study, the book of which is spread open before every individual.

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

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